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SHAH, PARAS D

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

1. This communication is in response to the Arguments and Amendments filed on 05/04/2009. Claims 1-21 are pending and have been examined. The Applicants' amendment and remarks have been carefully considered, but they do not place the claims in condition for allowance. Accordingly, this action made FINAL.

2. All previous objections and rejections directed to the Applicant's disclosure and claims not discussed in this Office Action have been withdrawn by the Examiner.

Response to Amendments and Arguments

3. Applicant's arguments with respect to claims 1-21 have been considered but they are not persuasive.

In regards to the 35 USC §103 rejection of claims 1-4 and 14-21, the Applicant's argue that the primary reference of Chinn does not teach a user utterance in response to the system asking a question. The Examiner respectfully disagrees with this assertion. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "in response to the system asking a question") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). What is recited by the claim is the utterance is received in response to a prompt. The claim does not require that the system does the prompting. The claim is sufficiently broad to read on the user prompting the system and

performing the assignment of nodes based on the prompt from the user once the system is ready for input (see Figure 3, step 310, listen for directive). For this reason, the argument is not persuasive.

The Applicant argues that the steps in 1 (b) (pages 15-18) are not taught in Chinn et al. since the Office Action is based on speculation on what the user may do and requires the use of an additional input. The Examiner respectfully disagrees with this assertion. In response to the former argument, the use of speculation is necessary in a speech dialogue system. The interaction by the user with a system is not a concrete task, where the system already knows the user input. The user must enter an input, which varies based on user preference with respect to information retrieval. Due to the variability, the user may select various options from menus or information. Chinn, in Figure 2, teaches such a system. The nodes within the Figure represent various informational sources which are accessed based on user preference. This teaching, although it may be speculative, is dependent upon the user and therefore is not known prior to start of the dialogue between the user and system. However, the possible interactions between the user and the system are taught in Figure 2.

In response to the latter argument presented by the Applicant, the use of an additional input, as asserted by the Applicants) is not limited by the claim to a single input utterance. The Applicant is reminded that the claims consist of terminology of "comprising" and hence does not prevent the claims from including another utterance as the claims do not prevent an additional user input. The limitation of assignment of a new focus node is taught in Chinn paragraph [0057] and Figure 2, where if the user selected

the portfolio then this would become the focus node and prompt more questions. Further, the user is not inputting any additional input, where in paragraph [0057], the root node is a common node to all nodes and then a portfolio node is accessed based on the initial user input into the system to retrieve relevant information. Similar reasoning can be made with respect to steps 1(b) (2) and 1(b) (3). In step 1(b) (2) the claim specifically recites that user input is identified, thus the use of an additional prompt to determine user intent is needed. Such is taught in Chinn Figure 2, such as the example of node 3.1.3, which was used in the prior Office Action for retrieving information for S&P 500. With respect to steps 1(b) (3), such prompting being performed based on the new focus node not being a leaf node is taught in Chinn. The same paragraphs [0057] ad [0058] and Figure 2, shows the node 2.1 not being a leaf node since it contains plural nodes beneath. Thus the user would be prompted for information in order to narrow the information related to the Portfolio. Furthermore, such an approach based on user input in order to access pertinent information related to the user's query is related to the Applicant's invention. The claims recite if statements, which indicate a condition, which may occur or may not occur based on the user input. In response to the user input an action is performed by the system. Thus, the claims are also speculative since they represent a set of conditions that may occur based on user input. For this reason, the argument is not persuasive.

The Applicant argues that the steps in 1 (c) (pages 18 and 19) are not taught in light of the above arguments and further fail to teach that the limitations as recited. The Examiner respectfully disagrees with this assertion. Chinn uses the root node and

traverses down the various categories that are possible inputs by the user. This is described in paragraph [0097]. The user prompts the system as to whether it is raining in San Francisco. Based on the initial root node, a plurality of possible direct descendents from the root node are present containing San Francisco is present. This is shown in Figure 2. Thus, a lowest common node is the root node in Chinn. Chinn does not teach the focus node being different from the current focus node. Norton, was cited to teach this limitation. The tree diagram in Norton, specifically Figure 2B, presents a sophisticated dialog system, which can contain plural nodes, where the nodes comprise more children nodes derived from the parent nodes. This plurality of children nodes allows for multiple nodes based on the roleset information that it represents. Chinn, as previously described, already shows a teaching of this possibility. Since the teachings of Chinn rely on a less complex model, such focus node being different when utilizing the complex task system of Norton, such can be realized. The focus node being different would allow the disambiguation of information by prompting to the user in order to present appropriate information (see Chinn [0099]). For this reason, the argument is not persuasive.

The applicants further argue that the Norton reference is non-analogous. The Examiner respectfully disagrees with this assertion. The Norton reference as described in col. 1, lines 6-8, relates to a spoken dialog system between a machine and a user. Similarly, Chinn relates to a spoken dialog system, where a system queries a system and provides content based on the recognized keyword (See abstract). Thus, both are in the same field of endeavor and are analogous arts. It has been held that a prior art

reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). For this reason, the argument is not persuasive.

Applicants, in pages 20-21, argue that one of ordinary skilled in the art would not sufficient motivation to combine the references of Chinn and Norton since Norton's system deals with an IVR system and is based on a call flow and the system of Chinn represents is a database for retrieving and searching information. The Examiner respectfully disagrees with this assertion. The applicants are correct that Chinn is used for information retrieval. However, an IVR system, such as that by Norton, also is an information retrieval system. An IVR allows information to be presented to the user based on the request made by the user. In col. 2, lines 31-40 describes the use of tasks being carried out in a tasks according to a task model and user asks questions and the system responds, which is further described in col. 3, lines 49-60. Chinn, is related in a similar fashion, which accepts user queries and presents information to the user based on the query. Thus, based on the task presented in the query, specific information is retrieved according to the task and provides output. The output is derived from a navigation tree or a data structure as described in paragraph [0057]. In Chinn these task models are the nodes which contain content information and is output based on the recognized utterance (see [0058], and [0060]). Thus, the systems of Chinn are similar and are not different. Further, a substantial redesign and modification would not be

needed when incorporating the tree of Norton. It would only involve an increase in content in Chinn as the nodes represent content information (see paragraphs [0058]-[0060] and see Figure 2). For this reason, the argument is not persuasive.

In response to the Applicant's arguments (pages 22-23) that Chinn does not teach a task model and therefore would not have been obvious to use the task model of Norton. The Examiner respectfully disagrees with this assertion. The Applicant's are directed towards the above mentioned reasoning, where this assertion was addressed.

In response to the Applicant's arguments (pages 23-24) that it is difficult to use KSR and apply these principles in present case. The Examiner respectfully disagrees with this assertion. With respect to rationale B, it would not be difficult to substitute pieces of the task model into the data structure of Chinn. Since, it would only require Chinn's system in Figure 2 to be expanded with respect to content information, thus expanding the nodes and allowing the presentation of other types of information based on the parent content node. The results are predictable since both systems utilize the initial task by the user and provides information in response to the task. With respect to rationales D and E, such argument is not persuasive for the reasons mentioned above as it was noted that the combination of references would not need a reprogramming and restructuring but an expansion of the tree in Figure 2 of Chinn, where more data is available for searching and fulfilling user request (see [0061], where the query is processed and information processed). In response to rationale E, the Applicants have asked in the Remarks what reasonable expectation of success for the combination to actually work. There is a reasonable expectation of success since the Chinn as modified

by Norton presents a system comprising more content as defined by the nodes and the incorporation of task models of Norton. The task models in relation to Chinn provide information based on the task given by the user (see Norton, col. 2, lines 21-29 and see Chinn, paragraph [0062], and Abstract). In Norton this task model is a framework for presenting for describing information needed to perform the task. In Chinn, this is the content that is accessed at each node and is used to perform the task (information retrieval and presentation) in response to a user query (see [0061] and Abstract). For these reasons, the arguments are not persuasive.

In response to the Applicant's Arguments regarding claim 5, the Applicants repeat arguments that are addressed above and therefore these arguments are not persuasive.

All claims dependent upon the independent base claims are similarly rejected for the reasons mentioned above.

Claim Objections

4. Claim 18 is objected to because of the following informalities: "computer readable instructions that instructs a computing device to perform" should be changed to "computer readable medium storing computer readable instructions that instructs a computing device to perform". Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4 and 14-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chinn *et al.* (US 2003/0115289) in view of Fratkina (US 2001/0049688) in view of Norton *et al.* (US6,510,411).

As to claims 1, 14, and 18 Chinn *et al.* discloses a disambiguation method (see [0099], disambiguation of San Francisco pertaining to Weather or Traffic) in a spoken dialog service that identifies a user need the disambiguation method being associated with a rooted tree (see Figure 2), the method comprising a processor (see [0040], where a processor is described executing software code and [0153]):

(a) based on a received user utterance in response to a prompt (see [0097], user asks a question), establishing at least one lit node and assigning a current focus (see [0057], root node).

(b) if there is a single direct descendent of the focus node that is lit (see Figure 2, if the user wants portfolio information then this would be a focus node 2., which is a direct descendent from root node 1.0).

(1) assigning the lit direct descendent of the current focus node as a new focus node (see Figure 2, and [0057], if the user selected the

portfolio then this would become the focus node and prompt more questions).;

(2) if the new focus node is a leaf node, identifying the user need (see Figure 2, If during traversal the focus node went from a current focus node 2.1 to a new focus node 3.1.3, the user information is identified and presented. Although not specifically disclosed in the reference. Such can be inferred as shown in a similar example as in [0097]-[0100])

(3) if the new focus node is not a leaf node, prompting the user to disambiguate between descendent nodes of the new focus node and returning to step (a) (see Figure 2 and [0057]-[0058]) (e.g. It can be interpreted from Figure 2, that since portfolio 2.1 is the focus node and is not a leaf node, then questions would be asked to the user to determine which information is to be extracted and presented.);

(c) if there are a plurality direct descendent of the current focus node that is lit (see Figure 2 and [0097]-[0100], San Francisco appears twice in the nodes).

(1) assigning a lowest common ancestor node of all lit nodes as a new focus node (see Figure 2, and [0100] and [0057]) (e.g. Since there is are multiple matches of the spoken input, the root node becomes the focus node so as to ask another question to the user for disambiguation. Further, the example given by Chinn in the cited sections teach an example of disambiguating between different concepts, which goes back

to the previous state depending on the traversal through the dialogue flow.);

(2) prompting the user for input to disambiguate between descendent nodes of the new focus node (see [0099]-[0100], system prompts user to disambiguate); and

(3) returning to step (a) (e.g. It is obvious that once the appropriate information is retrieved that the system will terminate or can go back for the next user (see Figure 3, END).

However, Chinn *et al.* does not specifically disclose step b although it can be inferred.

Fratkina *et al.* does teach the traversal in a rooted tree as recited in step b. (see [0291] and Figures 10-12) (e.g. The cited sections describe the traversal through a rooted tree. In Figure 10, the user specified eggs, the Breakfast node is the focus node and contains plurality of descendents. Based on the eggs, the user is prompted by the type of eggs. This switches the focus node to scrambled and since this is now a leaf node. The user 's need has been determined ([0291]). Further Fratkina *et al.* teaches the use of lighting (see Figure 10-12, bolded ovals)

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the disambiguation method using a tree as taught by Chinn with the example tree and traversal as taught by Fratkina *et*

al. for the purpose of determining or identifying user need (see Fratkina *et al.* [0297]).

However, Chinn *et al.* in view of Fratkina *et al.* do not specifically teach the new focus node is different from the current focus node.

Norton does teach the new focus node that is different from the current focus node (see Figure 2B, roleset 215, 220, and roleset 211, where top level task 210 is previous focus node) (e.g. The teachings of Norton show the various types of task models for performing dialog in an IVR system. The example provided by Chinn shows a simple task model. However, it would have been obvious to use a more complicated task model as shown by Norton. Hence, the use of a complex task model to the example provided by Chinn would have enabled a new focus node to be assigned based on the level of the task and possible disambiguation that may be necessary as a result of multiple matches found as presented by Chinn in paragraphs [0099] and [0100]).

Because both Chinn in view of Fratkina and Norton teach method and system for conducting a dialog with a user, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to have substituted the task model as taught by Norton with the disambiguation as taught by Chinn in view of Fratkina for the purpose of achieving the predictable result of moving a user through a dialog and to prevent ambiguity between terms (see Chinn *et al.* [0099]-[0100]) (see KSR v. TELEFLEX, MPEP 2141, III, Rationales B, D, and E).

As to claims 2, 3, 15, 16, 19, 20, Chinn *et al.* in view of Fratkina *et al.* in view of Norton *et al.* teach all of the limitations as in claim 1, above.

Furthermore, Chinn *et al.* teaches if after step (a), only one lit node exists that is not a direct descendent of the focus node, and the one lit node is a leaf node (see Figure 2 and [0097]) (e.g. If the user requested information for San Francisco weather.. San Francisco is not a direct descendent, but is a leaf) the method further comprises:

(d) identifying the user need according to the lit leaf node (see [0097], system determines that San Francisco pertains to weather and outputs information pertaining to the query (see Abstract, content of node is presented.)

As to claims 4, 17, and 21 Chinn *et al.* in view of Fratkina *et al.* in view of Norton *et al.* teach all of the limitations as in claim 1, above.

Furthermore, Fratkina *et al.* teaches wherein a first prompt to the user is associated with a root node of a rooted tree (see [0244] and [0297], trigger nodes cause new dialog goals to be generated for prompting user questions)

7. Claims 5-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abella *et al.* (US 6,044,347) in view of Young ("Dialog Structure and Plan Recognition in Spontaneous Spoken Dialog", 1993) in view of Norton *et al.*

As to claims 5 and 10, Abella *et al.* discloses

a dialog manager within a spoken dialog service, the dialog manager operating according to a dialog disambiguation rooted tree, the rooted tree having a root node, nodes descending from the root nodes organized in categories and leaf nodes, the dialog manager performing via processor (see Figure 1, processor 18) the steps:

(a) gathering input from a user to match (see col. 4, lines 43-44), with at least one node and node condition, wherein a first prompt from the dialog manager relates to a focus root node(see col. 9, lines 41-44 and lines 50-67) (e.g. From the former cited section, a tree based approach is used by the dialog manager. The latter citation develops an example. The use of the lit nodes and focused nodes is implied by the reference when used with a tree based hierarchical structure. The example shows multiple occurrences of Atlantic City. The user is asked whether Atlantic City is a movie, which is a focus node, and the lit node being the movie and location headings as seen in Figure 4).

(b) lighting at least one relevant node according to the received user input (see col. 9, lines 41-44 and lines 50-67);

(c) generalizing by attempting to select a new focus node further from a current focus node (see col. 9, lines 41-44 and lines 50-67) by:

(2) assigning a lowest common ancestor node as a new focus node if there are multiple descendent nodes that are lit and step (c)(1) does not apply (see col. 9, lines 41-44 and lines 50-67) (e.g. From the example

illustrated, since there are multiple descendent nodes with the information “Atlantic City” disambiguation procedure occurs, see Figure 4.);

(d) depending on a status of the new node, identifying the user need or prompting the user to disambiguate between descendent nodes of the new focus node and returning to step (b) (see Abella *et al.*, col. 9, lines 41-44 and lines 50-67, where disambiguation takes place depending on the meanings found)

However, Abella *et al.* does not specifically disclose the assigning of a focus node if it is a direct descendent of the focus node previously.

Young discloses,

(1) assigning a node as a new focus node if it is the only lit direct descendent of a focus node after step (see page 9, last paragraph) (e.g. The transition from one attribute to another regarding the pizza changes the focus of the dialog).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the dialogue management system using a tree based structure as taught by Abella *et al.* with the inclusion of focus node assignment as taught by Young. The motivation to have combined the two references involves the clarification of the attribute that is active (see Young, pages 7, sect. 4, last paragraph-page 8, lines 1-9 and last paragraph).

However, Abella *et al.* in view of Young do not specifically teach the new focus node is different from the current focus node.

Norton does teach the new focus node that is different from the current focus node (see Figure 2B, roleset 215, 220, and roleset 211, where top level

task 210 is previous focus node) (e.g. The teachings of Norton show the various types of task models for performing dialog in an IVR system. Hence, the use of a complex task model to the example provided by Abella would have enabled a new focus node to be assigned based on the level of the task and possible disambiguation that may be necessary as a result of multiple matches found as presented by Abella in col. 9, lines 41-67).

Because both Abella *et al.* in view of Young and Norton teach method and system for conducting a dialog with a user, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to have substituted the task model as taught by Norton with the disambiguation as taught by Abella *et al.* in view of Young for the purpose of achieving the predictable result of moving a user through a dialog and to prevent ambiguity between terms (see Abella *et al.*, col. 9, lines 41-44, 50-67)(see KSR v. TELEFLEX, MPEP 2141, III, Rationales B, D, and E).

As to claims 6 and 11, Abella *et al.* in view of Young further discloses

wherein step (c)(1) further comprises: if the new focus node is a leaf node, identifying the user need (see Young, sect. 4, 1st paragraph, and bullets 3-10) (e.g. The size of the pizza is determined where the size is the leaf node and requesting from the user size type desired); and if the new focus nodes is not a leaf node, prompting the user to disambiguate between descendent nodes of the new focus node and returning to step (b) (see Young, sect. 2.1, example, types

of olives for toppings is requested from the user and disambiguation has taken place to determine which olives the user desires.);

As to claim 7, Abella *et al.* in view of Young further discloses

prompting the user for input to disambiguate between descendent nodes of the new focus node; and returning to step (b) (see Abella *et al.*, col. 9, lines 41-44 and lines 50-67).

As to claims. 8 and 12, Abella *et al.* in view of Young further discloses

if after step (b), only one lit node exists that is not a direct descendent of the focus node, and the one lit node is a leaf node (see Abella *et al.*, Figure and col. 9, lines 41-44 and lines 50-67) (e.g. From the cited portions, term “Atlantic City” is searched, which is not a direct descendent of the focus node, element 60 of Figure 4), the method further comprises: identifying the user need according to the lit leaf node (see Abella *et al.*, col. 9, lines 61) (e.g. The user is asked whether the term “Atlantic City” is a location or a movie title.).

As to claims 9 and 13, Abella *et al.* in view of Young further discloses

wherein if only one lit node exists that is not a direct descendent of the focus node and the one lit node is a leaf node, the method further comprises presenting information to the user regarding a condition of the lit leaf node (see

Abella *et al.*, col. 9, lines 61) (e.g. The user is asked whether the term “Atlantic City” is a location or a movie title).

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PARAS SHAH whose telephone number is (571)270-1650. The examiner can normally be reached on MON.-THURS. 7:00a.m.-4:00p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (571)272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2626

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/David R Hudspeth/
Supervisory Patent Examiner, Art Unit 2626

/P. S./
Examiner, Art Unit 2626

07/27/2009